#4

Access DB# 248149

SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Sin J. Lee Examiner #: 76660 Date: 1-9-08
Art Unit: 1795 Phone Number 30 2-1333 Serial Number: 10/563,501
Mail Box and Bldg/Room Location: 9C15 Results Format Preferred (circle): PAPER DISK E-MAIL
(Rem)

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: P/z. Alk Blk.

Inventors (please provide full names): _____

_____

Earliest Priority Filing Date: _____

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

Please search for the polymers of

Cl. #1

****

STAFF USE ONLY

Searcher: EZ

Searcher Phone #: _____

Searcher Location: _____

Date Searcher Picked Up: _____

Date Completed: 1-15-08

Searcher Prep & Review Time: _____

Clerical Prep Time: _____

Online Time: _____

Type of Search

NA Sequence (#)_____

AA Sequence (#)_____

Structure (#) _____

Bibliographic _____

Litigation _____

Fulltext _____

Patent Family _____

Other _____

Vendors and cost where applicable

STN _____

Dialog _____

Questel/Orbit _____

Dr.Link _____

Lexis/Nexis_____

Sequence Systems _____

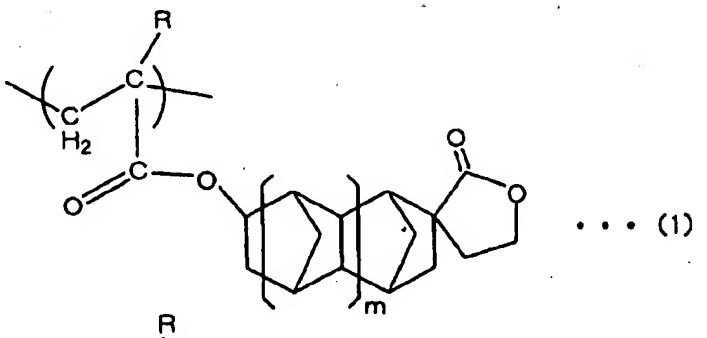
WWW/Internet _____

Other (specify)_____

PTO-1590 (8-01)

AMENDMENTS TO THE CLAIMS

1. **(Original)** A polymer comprising at least one structural unit (a1) containing a lactone represented by one of general formulas (1) through (4) shown below:



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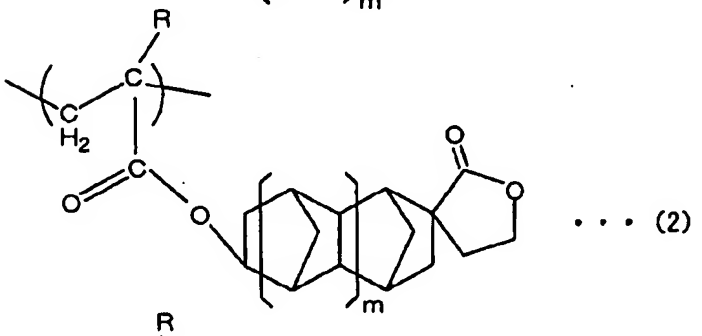

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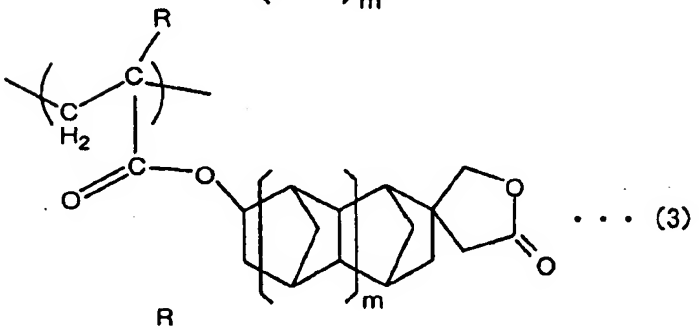

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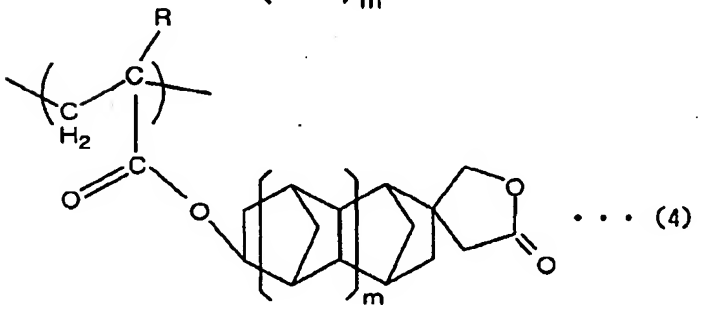

• • • (4)

(wherein, in said formulas (1) to (4), R represents a hydrogen atom or a methyl group, and m is either 0 or 1).

```
=> FILE REG
FILE 'REGISTRY' ENTERED ON 15 JAN 2008
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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=> D HIS

     FILE 'LREGISTRY' ENTERED ON 15 JAN 2008
L1                STR

     FILE 'REGISTRY' ENTERED ON 15 JAN 2008
L2                SCR 2043
L3              1 S L1 AND L2
L4             25 S L1 AND L2 FUL
                  SAV L4 LEE501/A

     FILE 'ZCA' ENTERED ON 15 JAN 2008
L5             15 S L4
L6              6 S 1840-2003/PY,PRY,AY AND L5

     FILE 'REGISTRY' ENTERED ON 15 JAN 2008


=> D L4 QUE STAT
L1                STR
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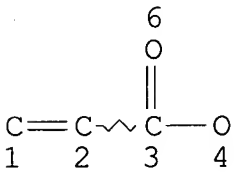

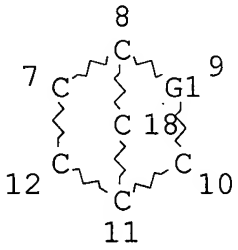

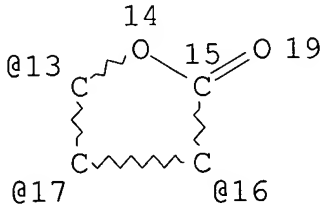


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VAR G1=13/17/16
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  18

STEREO ATTRIBUTES: NONE
L2                SCR 2043
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L4 25 SEA FILE=REGISTRY SSS FUL L1 AND L2

100.0% PROCESSED 2969 ITERATIONS 25 ANSWERS
SEARCH TIME: 00.00.01

=> FILE ZCA
FILE 'ZCA' ENTERED ON 15 JAN 2008

=> D L6 1-6 CBIB ABS HITSTR HITRN

L6 ANSWER 1 OF 6 ZCA COPYRIGHT 2008 ACS on STN
142:363804 Lactone-containing polymers, resist materials containing them with low line edge roughness and excellent resolution, etching resistance, and thermal stability, and pattern formation using them. Funatsu, Akiyuki; Nishi, Tsunehiro; Nagura, Shigehiro (Shin-Etsu Chemical Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2005097533 A 20050414, 58 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2004-144569 20040514. PRIORITY: JP 2003-311056 20030903.

AB The polymers, useful for excimer laser photolithog. or electron beam lithog., have repating units CH2CR1(CO2Z), CH2CR3(CO2Y), and CH2CR4(CO2X) (R1,3,4 = H, Me; X = lactone-contg. group; Y = 3-OH-5-R5-6-R6-adamantyl; Z = 1-R2-cyclopentyl, 1-R2-cyclohexyl; R2 = C1-12 linear, branched, or cyclic alkyl; R5,6 = H, OH).

IT **849060-37-3 849060-39-5**
(lactone-contg. polymers for resists with low line edge roughness and good resoln., etching resistance, and thermal stability)

RN 849060-37-3 ZCA

CN 2-Propenoic acid, 2-methyl-, dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl ester, polymer with dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 1-ethylcyclopentyl 2-methyl-2-propenoate and 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

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CMF C14 H18 O4
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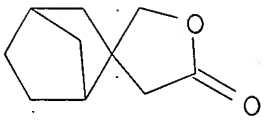
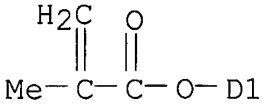
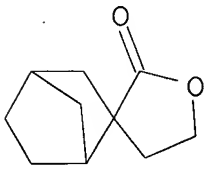
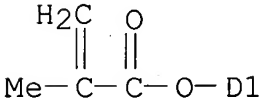




CM 2

CRN 848143-97-5
CMF C14 H18 O4
CCI IDS





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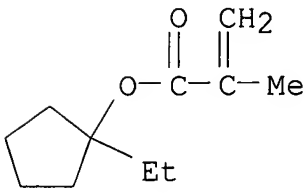
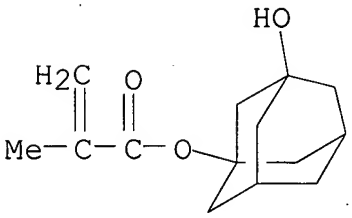


CM 4

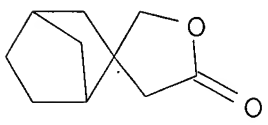
CRN 115372-36-6
CMF C14 H20 O3

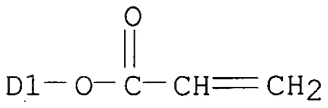


RN 849060-39-5 ZCA
CN 2-Propenoic acid, 2-methyl-, 1-ethylcyclopentyl ester, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-propenoate and 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 849060-38-4
CMF C13 H16 O4
CCI IDS





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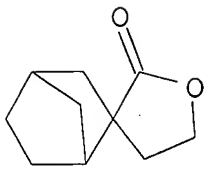
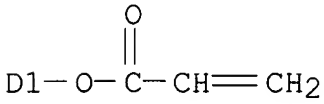
CCI IDS





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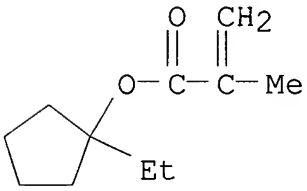

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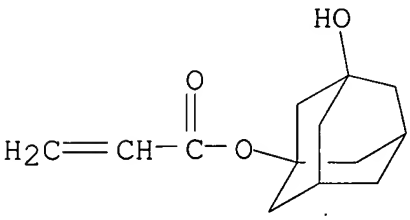


IT **849060-37-3 849060-39-5**
(lactone-contg. polymers for resists with low line edge roughness and good resoln., etching resistance, and thermal stability)

L6 ANSWER 2 OF 6 ZCA COPYRIGHT 2008 ACS on STN
142:325926 Polymer, resist composition and patterning process.

Tachibana, Seiichiro; Nishi, Tsunehiro; Kobayashi, Tomohiro (Japan).
U.S. Pat. Appl. Publ. US 2005058938 A1 20050317, 46 pp.
(English). CODEN: USXXCO. APPLICATION: US 2004-936753 20040909.
PRIORITY: JP 2003-320659 20030912.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB A polymer comprises recurring units of formulas I, II, III, IV (R1-3,4,7 = H, Me; R2 = acid labile group; R5,6 = H, hydroxyl; R8 = lactone structure group) and has a Mw of 1,000-50,000. A resist compn. comprising the inventive polymer has a sensitivity to high-energy radiation, improved resoln. and etching resistance and lends itself to lithog. micropatterning with electron beams or deep UV.

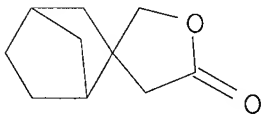
IT **848143-99-7P 848144-00-3P 848144-01-4P**
848144-02-5P 848144-03-6P
(polymer, resist compn. for patterning process)

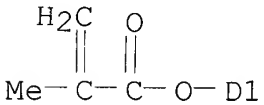
RN 848143-99-7 ZCA

CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 848143-98-6
CMF C14 H18 O4
CCI IDS





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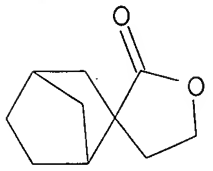

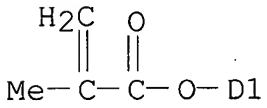

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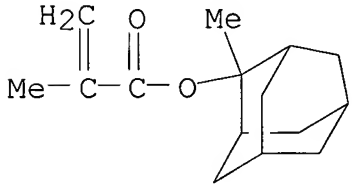

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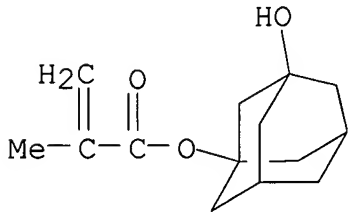

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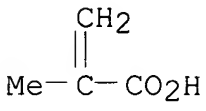
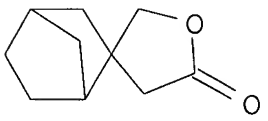
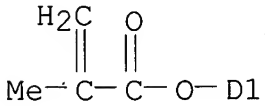


RN 848144-00-3 ZCA
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 2-ethyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate and 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 848143-98-6
CMF C14 H18 O4
CCI IDS





CM 2

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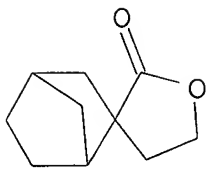
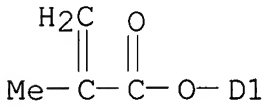
CCI IDS





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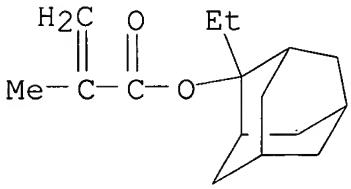

CM 4

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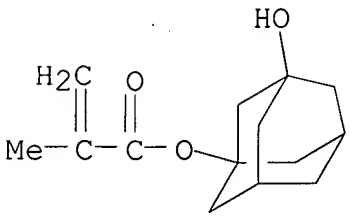

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CRN 79-41-4
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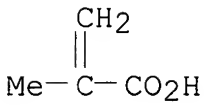

RN 848144-01-4 ZCA
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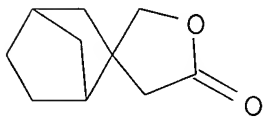
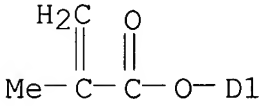
CM 1

CRN 848143-98-6
CMF C14 H18 O4
CCI IDS





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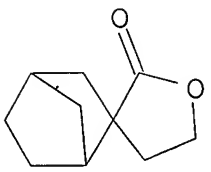
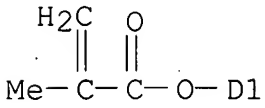
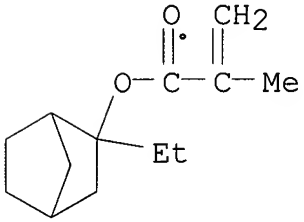
CRN 848143-97-5
CMF C14 H18 O4
CCI IDS





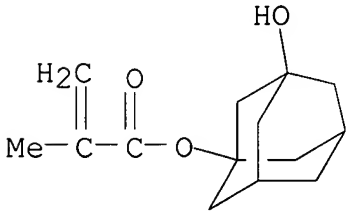
CM 3

CRN 330595-98-7
CMF C13 H20 O2



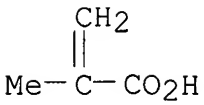
CM 4

CRN 115372-36-6
CMF C14 H20 O3



CM 5

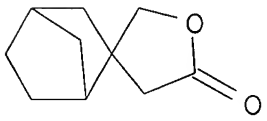
CRN 79-41-4
CMF C4 H6 O2

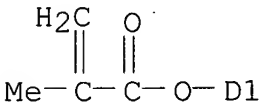


RN 848144-02-5 ZCA
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 2-ethyldecahydro-1,4:5,8-dimethanonaphthalen-2-yl 2-methyl-2-propenoate and 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

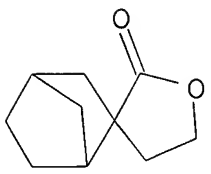
CRN 848143-98-6
CMF C14 H18 O4
CCI IDS

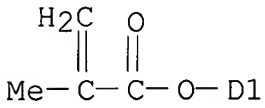




CM 2

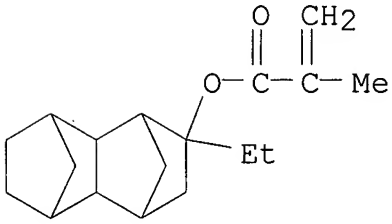
CRN 848143-97-5
CMF C14 H18 O4
CCI IDS





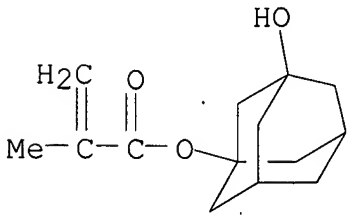
CM 3

CRN 485819-03-2
CMF C18 H26 O2



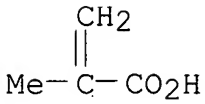
CM 4

CRN 115372-36-6
CMF C14 H20 O3



CM 5

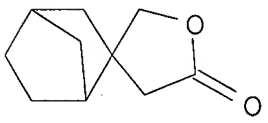
CRN 79-41-4
CMF C4 H6 O2

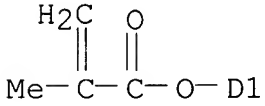


RN 848144-03-6 ZCA
CN 2-Propenoic acid, 2-methyl-, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-methyl-2-propenoate, 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate and 1-(7-oxabicyclo[2.2.1]hept-2-yl)cyclopentyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

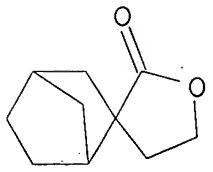
CRN 848143-98-6
CMF C14 H18 O4
CCI IDS

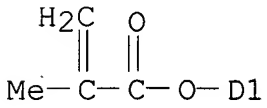




CM 2

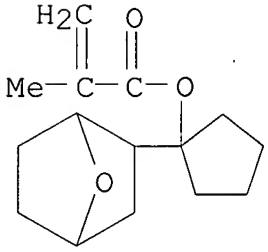
CRN 848143-97-5
CMF C14 H18 O4
CCI IDS





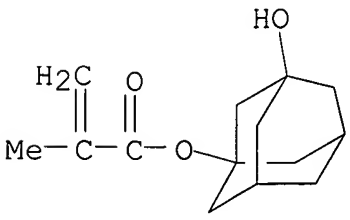
CM 3

CRN 676456-72-7
CMF C15 H22 O3



CM 4

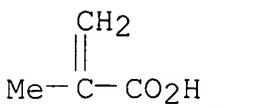
CRN 115372-36-6
CMF C14 H20 O3



CM 5

CRN 79-41-4

CMF C4 H6 O2



IT **848143-99-7P 848144-00-3P 848144-01-4P**
848144-02-5P 848144-03-6P
(polymer, resist compn. for patterning process)

L6 ANSWER 3 OF 6 ZCA COPYRIGHT 2008 ACS on STN
142:123189 Positive resist composition and method for forming resist pattern using same. Hada, Hideo; Miyairi, Miwa; Iwai, Takeshi (Tokyo Ohka Kogyo Co., Ltd., Japan). PCT Int. Appl. WO 2005003193 A1 20050113, 44 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2004-JP9620 20040630. PRIORITY: JP 2003-192895 20030707; JP 2004-100204 20040330.

GI

Pres. Inv.

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB A resist compn. is disclosed which enables to prevent surface roughening of a resist pattern after either etching or developing, or preferably after both etching and developing. A resist pattern is formed by using a pos. resist compn. comprising a resin component (A), an acid-forming agent component (B) which produces an acid when exposed, and an org. solvent (C). The resin component (A) contains at least one constitutional unit (a1) contg. lactone which is represented by one of general formulas I-IV: (R = H, Me; m = 0, 1), and the alkali soly. thereof is increased by the action of an acid.

IT **823810-78-2P 823810-79-3P 823810-80-6P**
823817-70-5P
(resin in pos. resist compn.)

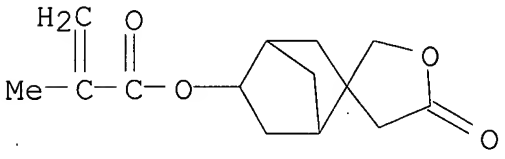
RN 823810-78-2 ZCA

CN 2-Propenoic acid, 2-methyl-, dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl ester, polymer

with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-methyl-2-propenoate and 2-methyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

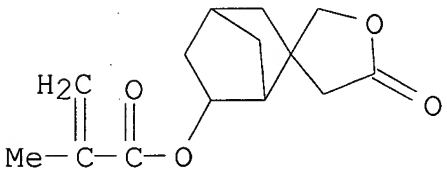
CM 1

CRN 479072-43-0
CMF C14 H18 O4



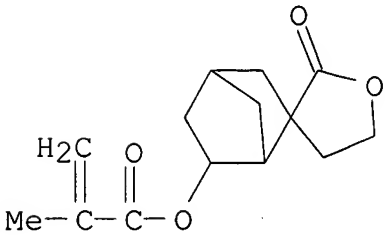
CM 2

CRN 479072-42-9
CMF C14 H18 O4



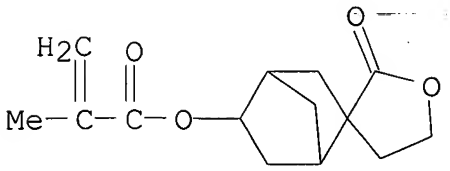
CM 3

CRN 479072-41-8
CMF C14 H18 O4



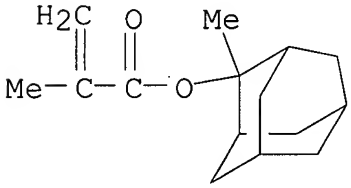
CM 4

CRN 479072-40-7
CMF C14 H18 O4



CM 5

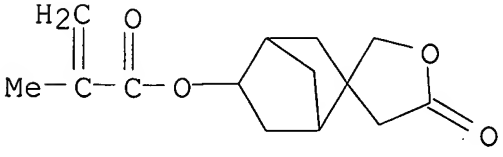
CRN 177080-67-0
CMF C15 H22 O2



RN 823810-79-3 ZCA
CN 2-Propenoic acid, 2-methyl-, dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl ester, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-methyl-2-propenoate and 2-ethyltricyclo[3.3.1.13,7]dec-2-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

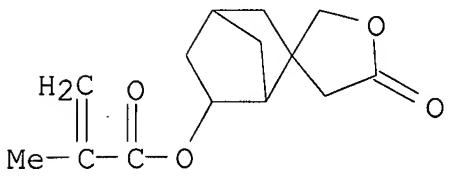
CM 1

CRN 479072-43-0
CMF C14 H18 O4



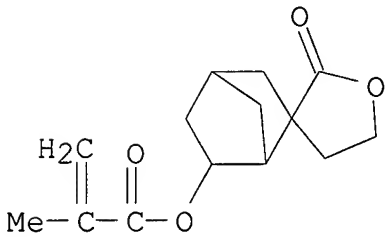
CM 2

CRN 479072-42-9
CMF C14 H18 O4



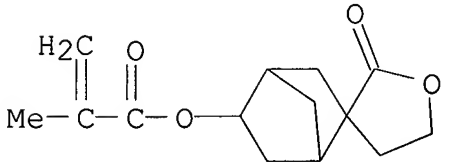
CM 3

CRN 479072-41-8
CMF C14 H18 O4



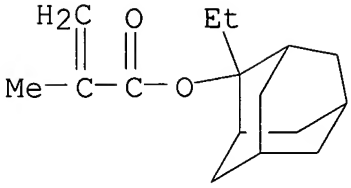
CM 4

CRN 479072-40-7
CMF C14 H18 O4



CM 5

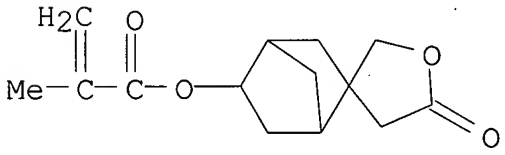
CRN 209982-56-9
CMF C16 H24 O2



RN 823810-80-6 ZCA
CN 2-Propenoic acid, 2-methyl-, dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl ester, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl 2-methyl-2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-methyl-2-propenoate and 2-ethyltricyclo[3.3.1.13,7]dec-2-yl 2-propenoate (9CI) (CA INDEX NAME)

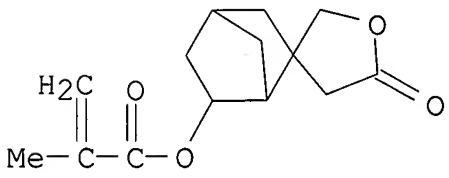
CM 1

CRN 479072-43-0
CMF C14 H18 O4



CM 2

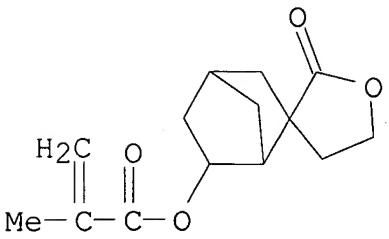
CRN 479072-42-9
CMF C14 H18 O4



CM 3

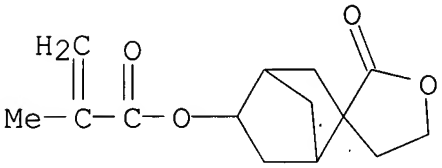
CRN 479072-41-8

CMF C14 H18 O4



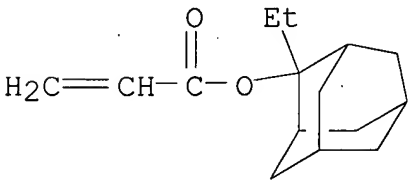
CM 4

CRN 479072-40-7
CMF C14 H18 O4



CM 5

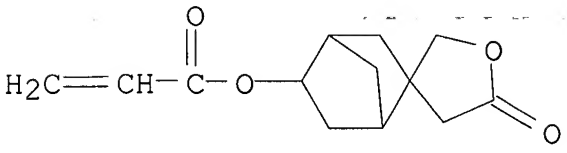
CRN 303186-14-3
CMF C15 H22 O2



RN 823817-70-5 ZCA
CN 1,4:5,8-Dimethanonaphthalene-2-carboxylic acid, decahydro-6(or 7)-[(1-oxo-2-propenyl)oxy]-, 1,1-dimethylethyl ester, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl 2-propenoate, dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-propenoate, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl 2-propenoate and dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-6-yl 2-propenoate (9CI) (CA INDEX NAME)

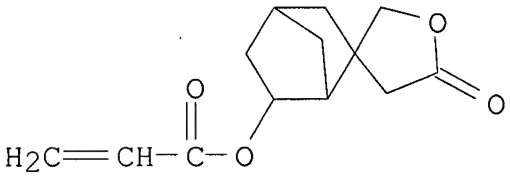
CM 1

CRN 479072-47-4
CMF C13 H16 O4



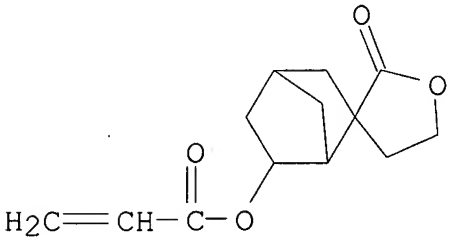
CM 2

CRN 479072-46-3
CMF C13 H16 O4



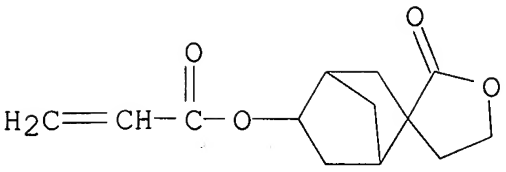
CM 3

CRN 479072-45-2
CMF C13 H16 O4



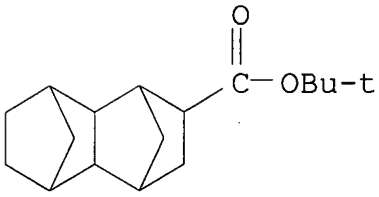
CM 4

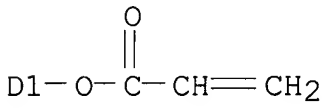
CRN 479072-44-1
CMF C13 H16 O4



CM 5

CRN 217652-52-3
CMF C20 H28 O4
CCI IDS

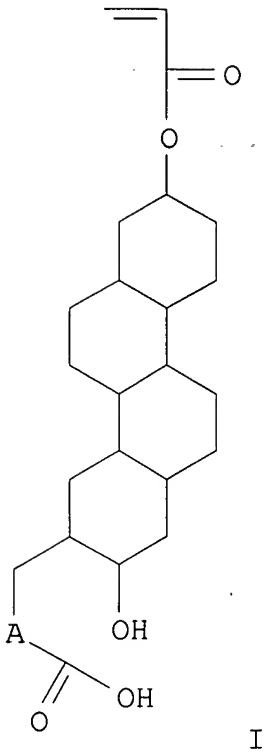




IT **823810-78-2P 823810-79-3P 823810-80-6P**
823817-70-5P
(resin in pos. resist compn.)

L6 ANSWER 4 OF 6 ZCA COPYRIGHT 2008 ACS on STN
141:417915 Preparation of hydroxy oxide compound, negative-working resist using it, and, manufacture of wiring. Yokoyama, Yoshiyuki; Hattori, Takashi; Iwashita, Atsushi; Tachikawa, Toshikazu (Tokyo Ohka Kogyo Co., Ltd., Japan; Hitachi Ltd.). Jpn. Kokai Tokkyo Koho JP 2004317575 A 20041111, 17 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-107908 20030411.

GI



I

AB The hydroxy oxide compd. is obtained by the steps of (i) removing metal impurity in a compd. (A) bearing lactone group in the side chain and (ii) opening the lactone ring of the compd. A by hydrolysis using an org. alk. compd. Neg.-working resist compn. contains the hydroxy oxide compd. The hydroxy oxide compd. may I (A = N, S, C1-21 alkyl), for example. The wiring is manufd. by the steps of (1) forming a layer of the neg. resist contg. resin contg. the hydroxy oxide and an acid generator, (2) exposing and developing the resist for pattern formation, (3) etching the substrate by using the pattern as a mask, and (4) removing the residual resist pattern. As metal impurity content is lowered and clear resist pattern is obtained.

IT **790665-51-9DP**, hydrolyzed
(neg. resist contg. purified hydroxy oxide compd. prepd. by hydrolysis of lactone ring by org. alk. compd.)

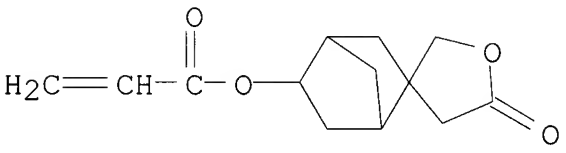
RN 790665-51-9 ZCA

CN 2-Propenoic acid, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 479072-47-4

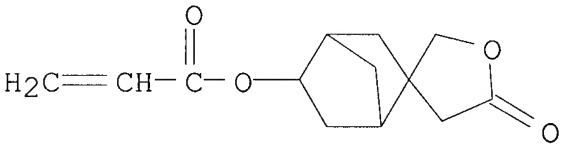
CMF C13 H16 O4



IT **790665-51-9P**
(purifn. and hydrolysis of; neg. resist contg. purified hydroxy oxide compd. prepd. by hydrolysis of lactone ring by org. alk. compd.)
RN 790665-51-9 ZCA
CN 2-Propenoic acid, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 479072-47-4
CMF C13 H16 O4



IT **790665-51-9DP**, hydrolyzed
(neg. resist contg. purified hydroxy oxide compd. prepd. by hydrolysis of lactone ring by org. alk. compd.)
IT **790665-51-9P**
(purifn. and hydrolysis of; neg. resist contg. purified hydroxy oxide compd. prepd. by hydrolysis of lactone ring by org. alk. compd.)

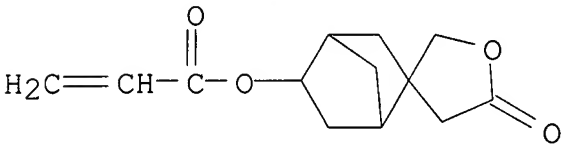
L6 ANSWER 5 OF 6 ZCA COPYRIGHT 2008 ACS on STN
141:358084 Negative-working resist material and patterning method. Iwashita, Atsushi; Tachikawa, Toshikazu (Tokyo Ohka Kogyo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004294638 A 20041021, 19 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-84981 20030326.
AB Disclosed is the neg.-working resist material comprising a polymer compd. and a photoacid, wherein the polymer compd. has a polymerizable unit bonded to the backbone chain via C of a hydroxy acid and has no space between the hydroxy acid and the backbone chain not to admit an alkali substance close to it. The hydroxy acid group bonded to the backbone chain improved the storage stability and the space resoln.
IT **776329-02-3P 776329-03-4P**

(neg.-working resist material having hydroxy acid group bonded to backbone chain)

RN 776329-02-3 ZCA
CN 2-Propenoic acid, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5-yl ester, polymer with dihydro-4,4-dimethyl-3-methylene-2(3H)-furanone and 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

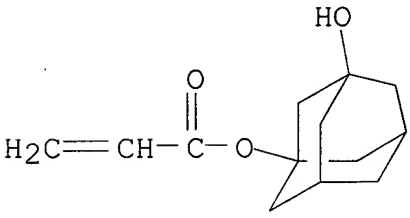
CRN 479072-47-4
CMF C13 H16 O4



present (3)

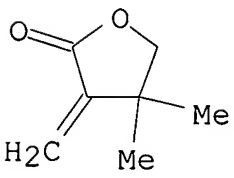
CM 2

CRN 216581-76-9
CMF C13 H18 O3



CM 3

CRN 135102-85-1
CMF C7 H10 O2

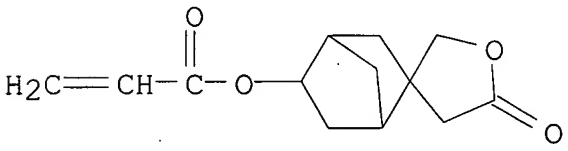


RN 776329-03-4 ZCA
CN 2-Propenoic acid, dihydro-5'-oxospiro[bicyclo[2.2.1]heptane-

2,3'(2'H)-furan]-5-yl ester, polymer with hexahydro-2-oxo-3,5-methano-2H-cyclopenta[b]furan-6-yl 2-propenoate and 3-hydroxytricyclo[3.3.1.13,7]dec-1-yl 2-propenoate (9CI) (CA INDEX NAME)

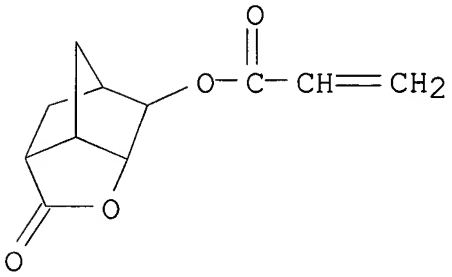
CM 1

CRN 479072-47-4
CMF C13 H16 O4



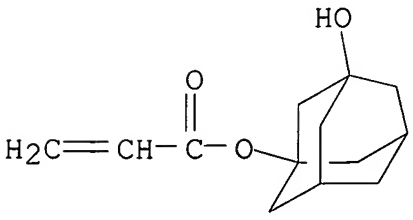
CM 2

CRN 242129-35-7
CMF C11 H12 O4



CM 3

CRN 216581-76-9
CMF C13 H18 O3



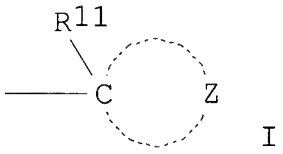
IT **776329-02-3P 776329-03-4P**
(neg.-working resist material having hydroxy acid group bonded to

backbone chain)

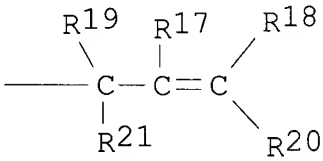
L6 ANSWER 6 OF 6 ZCA COPYRIGHT 2008 ACS on STN

139:188311 Positive DUV resist compositions with suppressed roughness of etched surfaces and good dissolution and defocus latitude in contact hole pattern formation. Sato, Kenichiro (Fuji Photo Film Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2003233187 A **20030822**, 54 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2002-32448 20020208.

GI



I



II

AB The pos. resist compns. contain (A) 2 resins contg. specific repeating units bearing alicyclic groups and (B) compds. which generate acids by irradn. of actinic ray or radiation. A comprise (A1) resins bearing repeating untis represented by CH2CR1ACO2ALG [R1 = H, Me; A = single bond, linkage; ALG = I, CR12R13R14, CH(OR15)R16, II, and CR22R25CHR23COR24; R11 = Me, Et, n-Pr, i-Pr, n-Bu, sec-Bu; Z = atom. group necessary for forming alicyclic hydrocarbyl (ACHC) together with C; R12-R16 = C1-4 alkyl, ACHC; ≥1 of R12-R14 and R15 and/or R16 show ACHC; R17-R21 = H, C1-4 alkyl, alkcyclic hydrocarbyl; ≥1 of R17-R21 show ACHC; R19 and/or R21 = C1-4 alkyl, ACHC; R22-R25 = C1-4 alkyl, alicyclic hydrocarbyl; ≥1 of R22-R25 = ACHC; R23 and R24 may be bonded to each other and form ring] and (A2) resins bearing repeating units represented by CH2CR2CO2A1R3A2CO2R4 (R2 = H, alkyl; R3 = ACHC; R4 = chain-type tertiary alkyl, 1-alkoxyalkyl, tetrahydropyranyl, tetrahydrofuranyl; A1, A2 = single bond, alkylene, ether, carbonyl, ester).

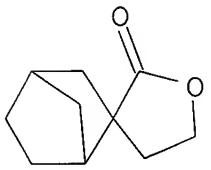
IT **581096-15-3P 581096-72-2P**
(pos. DUV resist compns. with suppressed roughness of etched surfaces and good dissoln. and defocus latitude in contact hole pattern formation)

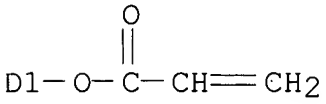
RN 581096-15-3 ZCA

CN Tricyclo[3.3.1.13,7]decane-1-carboxylic acid, 3-[(2-methyl-1-oxo-2-propenyl)oxy]-, 1,1-dimethylpropyl ester, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-propenoate and 3-hydroxy-5-methyltricyclo[3.3.1.13,7]dec-1-yl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

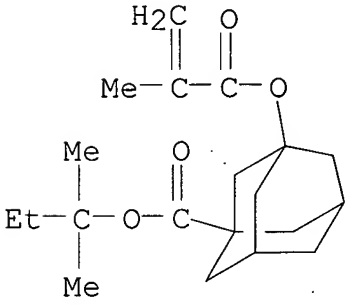
CRN 581096-14-2
CMF C13 H16 O4
CCI IDS





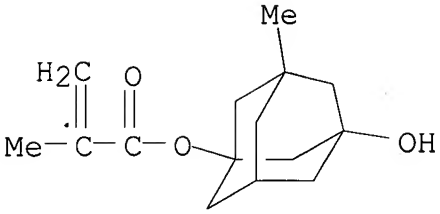
CM 2

CRN 581096-13-1
CMF C20 H30 O4



CM 3

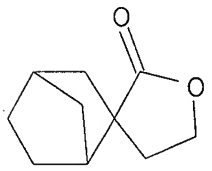
CRN 476312-25-1
CMF C15 H22 O3

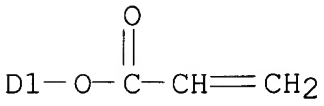


RN 581096-72-2 ZCA
CN 2-Propenoic acid, 2-methyl-, 5-ethyloctahydro-4,7-methano-1H-inden-5-yl ester, polymer with dihydro-2'-oxospiro[bicyclo[2.2.1]heptane-2,3'(2'H)-furan]-5(or 6)-yl 2-propenoate and 2-[[octahydro-1,2(or 2,3)-dihydroxy-4,7-methano-1H-inden-5-yl]oxy]ethyl 2-propenoate (9CI) (CA INDEX NAME)

CM 1

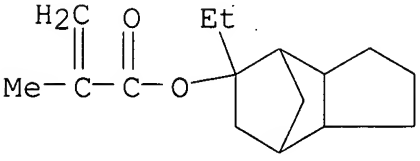
CRN 581096-14-2
CMF C13 H16 O4
CCI IDS





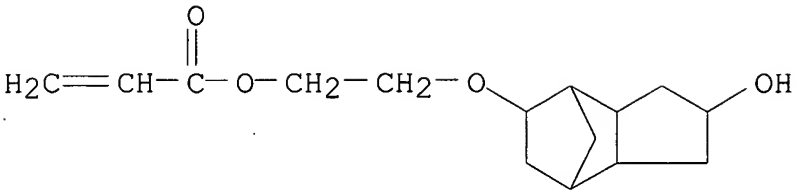
CM 2

CRN 348089-09-8
CMF C16 H24 O2



CM 3

CRN 140919-18-2
CMF C15 H22 O5
CCI IDS



D1—OH

IT **581096-15-3P 581096-72-2P**
(pos. DUV resist compns. with suppressed roughness of etched surfaces and good dissoln. and defocus latitude in contact hole pattern formation)